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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,340	02/23/2004	Brown Lyle Wilson	104-34620	2356

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/784,340

Applicant(s)

WILSON ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-15, 17-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2-23-04, 7-8-05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Election/Restrictions***

Applicant's election without traverse of species I, figures 1-7 in the reply filed on April 21, 2006 is acknowledged.

Claims 9 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 21, 2006.

***Information Disclosure Statement***

The information disclosure statement filed February 23, 2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of French Patent 1,025,250 and Soviet Union Patent 653,428 which are not in the English language. The information referred to therein has not been considered.

The U.S. application number 10/656,411 on the information disclosure statement filed February 23, 2004 has been crossed off and the corresponding published U.S. patent application listed on form PTO-892 by the examiner.

***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: “42” and “55”.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “35” in figure 2 has been used to designate both the upper section of the pump and the uppermost righthand portion of the pump in figure 2.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities: Appropriate correction is required.

On page 1, lines 1-6 including “PATENT APPLICATION”, the inventors, and the attorney docket number are superfluous and should be deleted.

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In paragraph 7, line 9, “an” should be changed to -- a --.

In paragraph 33, line 3, “rotated” should be changed to -- rotate --.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 2, which recites that the leading and trailing edges of each of the vanes are parallel to each other, has no antecedent basis in the specification (note that paragraph 28 of the specification states that the leading and trailing edges of each of the vanes are substantially parallel to each other).

Claim 4, which recites that the leading and trailing edges of each of the vanes are parallel to a radial line of the impeller, has no antecedent basis in the specification (note that paragraph 28 of the specification states that the leading and trailing edges of each of the vanes are substantially parallel to a radial line of the impeller).

Claim 6, which appears to recite that each diffuser blade comprises a portion that is curved in more than one plane, has no antecedent basis in the specification.

Claim 7, which recites that each impeller vane has a straight median line offset from the axis of the hub, has no antecedent basis in the specification.

Claim 10, which recites an outer casing with an axial centerline with the shaft extending thorough a portion of the outer casing along the axial centerline of the casing, has no antecedent basis in the specification.

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Claim 11, which recites that each vane has a straight edge that is parallel to a radial line of the impeller, has no antecedent basis in the specification.

Claim 14, which appears to recite that each diffuser blade comprises a portion that is curved in more than one plane, has no antecedent basis in the specification.

Claim 17, which recites an outer casing with an axial centerline with the shaft extending thorough a portion of the outer casing along the axial centerline of the casing, has no antecedent basis in the specification.

Claim 19, which recites that the leading and trailing edges of each of the vanes are parallel to a radial line of the impeller, has no antecedent basis in the specification.

#### ***Claim Objections***

Claims 1-8, 10-15, and 17-22 are objected to because of the following informalities:  
Appropriate correction is required.

In claim 1, line 6, "side" (second occurrence) should be deleted.

In claim 1, line 8, "an" should be changed to -- a --.

In claim 4, line 2, "is" (first and second occurrences) should be changed to -- are --.

In claim 10, line 5, -- a -- should be inserted after "having".

In claim 17, line 11, "an" should be changed to -- a --.

In claim 17, line 15, "." should be deleted.

In claim 19, line 2, "is" (first and second occurrences) should be changed to -- are --.

In claim 21, line 6, "each of" (second occurrence) should be deleted.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8, 10-15, and 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, line 3, “therewith” is indefinite because it is unclear which element this refers to (for example, the conditioning impeller, the hub, the bore, or the shaft). Claim 6, which recites that each diffuser blade comprises a portion that is curved in more than one of plane is unclear as to what is meant by “is curved in more than one of plane”. In claim 8, lines 2 and 3, which recite “the conditioning impellers” are ambiguous, because claim 1 from which claim 8 depends only recites a conditioning impeller. In claim 8, line 3, recites the limitation “the well fluid”. There is insufficient antecedent basis for this limitation in the claim. In claim 10, line 5, “therewith” is indefinite because it is unclear which element this refers to. In claim 13, lines 1-2, “an upstream side” and “a downstream side” are double recitations of the diffuser upstream side and downstream side recited in claim 10. Claim 14, which recites that each diffuser blade comprises a portion that is curved in more than one of plane is unclear as to what is meant by “is curved in more than one of plane”. In claim 15, lines 2 and 3, which recite “the conditioning impellers” are ambiguous, because claim 10 from which claim 15 depends only recites a conditioning impeller. In claim 17, line 5, “the pump” is unclear if this is intended to refer to the well pump assembly, or a separate pump. In claim 17, line 6, “therewith” is indefinite because it is unclear which element this refers to. In claim 21, line 2, “therewith” is indefinite because it is unclear which element this refers to. Claim 21, lines 5-6, recites the

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limitation “the conditioning impeller”. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 5-8, 17-18, and 20-22, as far as the claims are definite and understood, are and rejected under 35 U.S.C. 103(a) as being unpatentable over Vartapetov 3,267,869 in view of Fuller 3,438,329. Vartapetov discloses a well pump assembly for pumping a mixed flow of liquid and gas, comprising a conditioning impeller 23 having a hub 27 with a bore and a shaft 20 for rotation in a forward rotation direction, a stationary conditioning diffuser 30/33 juxtaposed



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with the conditioning impeller to receive fluid from the impeller, the diffuser having a plurality of blades 34 that incline from a downstream side to an upstream of the diffuser in a rearward rotational direction; and a plurality of impeller vanes 29 extending from the outer circumference of the hub of the conditioning impeller, each of the vanes inclining in the forward rotational direction 46 from a downstream side of the impeller, defining an unnumbered leading edge and an unnumbered trailing edge, wherein a radial line passing through an outer end of the leading edge of each of the vanes is rotationally forward of an inner end of the leading edge of each of the vanes for forcing liquid and gas radially inward and into the diffuser. Each impeller vane is curved from the leading edge to the trailing edge. Each diffuser blade is curved from the upstream side to the downstream side. Each impeller vane has a straight median line offset from the axis of the hub. There are plural downstream stages (column 2, lines 54-56) which form a plurality of pumping impellers located downstream of the conditioning impellers 23 for receiving well fluid from the conditioning impellers and increasing the well fluid pressure, the pumping impellers having plural unnumbered curved passages between adjacent vanes 29, and a pumping diffuser 30/33 located between each pumping impeller and having plural unnumbered curved passages between adjacent diffuser blades 34. Also disclosed is a well pump assembly having an outer casing 10 with an axial centerline and shaft 20 which extends through a portion of the casing along the axial centerline of the casing. The conditioning section comprises the conditioning impeller and the stationary diffuser. The plural downstream stages form the pump section and comprise the plural pump impeller and pump diffusers. Also disclosed is a method of pumping well fluid comprising rotating the impeller having the hub with the bore in a forward rotation direction, creating turbulence by forcing well fluid radially inward against centrifugal

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forces with the plurality of impeller vanes extending from the outer circumference of the hub of the conditioning impeller, and continuing to force the well fluid radially inward with the stationary conditioning diffuser receiving well fluid from the impeller and having the plurality of blades that incline from the upstream side to the downstream side of the diffuser in the rearward rotational direction, and conveying the well fluid to the set of pumping impellers.

However, Vartapetov does not disclose that the impeller bore is for engaging the shaft for rotation (claims 1, 17, and 21). Rather, the impeller bore has a bushing 24 for engaging the shaft. Vartapetov also does not disclose that each diffuser blade has a portion curved in more than one plane (claim 6).

Fuller shows a multistage pump having an impeller 22 with an unnumbered impeller bore engaging a pump shaft 23, for the purpose of allowing direct coupling of the impeller to the pump shaft. A diffuser 40/41/42 has diffuser blades 42 that each have a portion curved in more than one plane (see figure 5), for the purpose of allowing efficient and smooth fluid transfer from one impeller to the intake of the next succeeding impeller.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the well pump of Vartapetov such that the impeller bore engages the shaft for rotation, and such that each diffuser blade has a portion curved in more than one plane, as taught by Fuller, for the respective purposes of allowing direct coupling of the impeller

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to the pump shaft, and allowing efficient and smooth fluid transfer from one impeller to the intake of the next succeeding impeller.

The recitation in claim 1, line 1 of “for pumping a mixed flow of liquid and gas”, the recitation in claim 1, last two lines of “for forcing liquid and gas radially inward and into the diffuser”, the recitation in claim 8, lines 2-3 of “for receiving the well fluid”, the recitation in claim 17, line 1 of “for pumping a mixed flow of liquid and gas”, the recitation in claim 17, line 5 of “for mixing gaseous well fluid entering the pump”, the recitation in claim 17, lines 14-15 of “for forcing liquid and gas radially inward and into the diffuser”, the recitation in claim 17, line 16 of “for pumping the gaseous well fluid from the well”, and the recitation in claim 22, line of “for pumping the well fluid up a conduit” are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The recitation in claim 21, line 1 of “with mixed flow of liquid and gas” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Note also that the term “well fluid” in the claims is a

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recitation of intended use/characterization of the fluid, and the pump of Vartapetov is capable of pumping well fluid and the term “well fluid” does not distinguish over Vartapetov.

Claim 2, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Vartapetov 3,267,869 and Fuller 3,438,329 as applied to claim 1 above, and further in view of Japanese Patent 62-96,799. The modified well pump of Vartapetov shows all of the claimed subject matter except for the leading and trailing edges of each impeller vane 29 being straight and parallel to each other.

Japanese Patent 62-96,799 (figures 1-2) shows an impeller 1 having vanes 2 with unnumbered leading and trailing edges that are straight and parallel to each other, for the purpose of simplifying manufacture of the impeller vanes.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified well pump of Vartapetov such that the leading and trailing edges of each impeller vane 29 are straight and parallel to each other, as taught by Japanese Patent 62-96,799, for the purpose of simplifying manufacture of the impeller vanes.

***Allowable Subject Matter***

Claim 10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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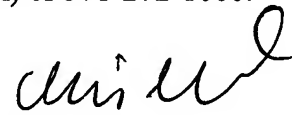
Claims 4, 11-15, and 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.  
June 29, 2006



Christopher Verdier  
Primary Examiner  
Art Unit 3745